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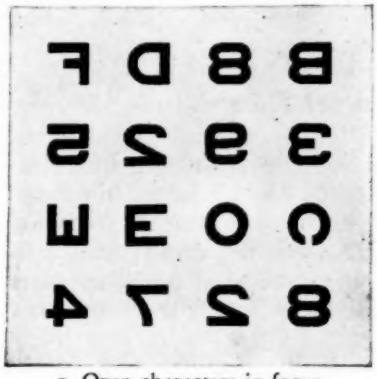

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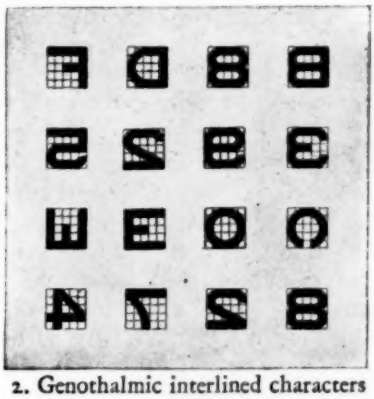

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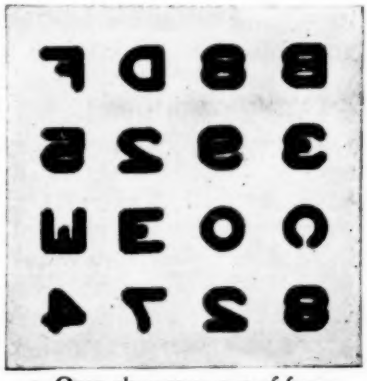

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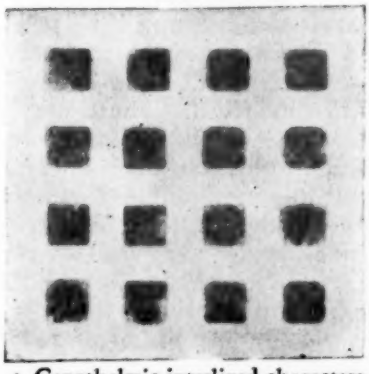

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DIAGNOSING PARALYSIS OF THE EXTRINSIC MUSCLES

Using the Co-ordimeter of Professor Hess

By

D. W. Wood, M. B., C. M., (Edin.)

Cape Town, South Africa.

from

The South African Medical Record.

The detection and diagnosis of eye muscle paralysis is in theory extremely simple, but in practice we find difficulties due to various causes. The patient is stupid or nervous, and says "right" when he means "left," and "left" when it should be "right." In testing with a light and red and green glasses he says "red" when he means "green" and vice versa. Also he may see much best with his paralysed eye, and if he uses it to fix with the other eye, will show a field of fixation indicating a condition of secondary deviation. There may be difficulties due to more than one muscle being paralysed, and, finally, if we attempt to get a chart for future comparison, if the patient moves his head and not merely his eyes, we shall have our result entirely invalidated, and made quite deceptive.

The scheme of Prof. Hess, of Zurich, who was first an ophthalmic surgeon and now is Professor of Physiology, gets us over many difficulties in a simple and yet very ingenious way.

You will remember that when both eyes see the same test or fixation object, and where one eye has an eye-muscle paralysis, if we move the fixation point into the sphere of action of the paralysed muscle, the eye affected lags behind, but the image—which does not fall on the macula—moves on ahead. It is mentally projected in the direction in which the eye-muscle fails to move the eye. The false image not only does not fall on the macula, but is also in consequence less bright, and its position is less easily determined. There is also the difficulty of satisfactorily fixing the head and making the eyes alone move.

Why not use the macular image in place of the false non-macular? Prof. Hess has shown how this may be done and with advantage. You are all familiar with the anaglyphs which spoil our enjoyment of the illustrated papers if we have lost the colour filters. In the same way Prof. Hess uses test objects and colour filters, which allow the patient to see only the red image with one eye and the green image with the other, and what he sees is in each case the object which falls on the macula.

The apparatus is simple. On a dead black screen are marked tangents of degrees, at 5-degree intervals when viewed from half a meter. On these are placed a series of red dots which can be seen only by the eye behind the red filter. The patient holds in his hand a half-meter-long pointer, to which are attached green threads, the intersection of which in a knot he is asked to place on the red dots. The green filter is placed over the eye which is supposed to have the defect. This eye can see only the green threads, the other only the red dots through its red filter.

Where no eye-muscle defect exists he can do this with ease, but where there is a defect of co-ordination he fails to do so. The eye with the paralysed muscle moves less than does the other, and the patient places his pointer short of where it should go whenever he gets into the sphere of action of the defective muscle. Except in slight degrees of paresis, it is sufficient to use only the centre square of the red dots, which gives an excursus of 15 degrees in each direction. When the patient has marked out with the green threads where he thinks the red

dots lie, we join the marks, and get in this way a field of movement belonging to the affected eye with the green glass, which is smaller in some direction than the field of the other eye, which, of course, is given by the red dots. The loss of movement is in the direction of the paralysed muscle, and the amount indicates its intensity.

The defect is charted on reduced replicas of the screen, and on these there are placed the names of the muscles which move the eyes in the various directions. These are simply obtained. It is clear that the external recti will move the eyes temporal-wise, and the name external rectus is therefore placed on the mid-temporal position. Similarly the internal recti, which move the eyes in, are indicated on the chart in the nasal median site. The vertical movements are subserved by the superior and inferior recti, and the inferior and superior obliques. You will remember from your anatomy that the recti muscles lie in the orbit at an angle outwards of some 27 degrees from the sagittal axis, and that when the eye is rotated outwards to correspond with this, the recti act at their best, and are pure elevators or depressors, no adduction or torsion taking place. On the chart, therefore, they are indicated above and below on the temporal side, the superior rectus turning the eye up, and the inferior down, to the maximum in these positions. The obliques, on the other hand, lie in a direction from before backwards and outwards, and are inserted into the eye behind the axis of rotation, so that the superior oblique turns the cornea down, the inferior up. They produce the maximum up and down effect when the eye is rotated in, and when this occurs they are as nearly as possible pure depressors and elevators. On the chart they appear on the nasal side, the inferior oblique above, the superior below, and a deficient excursion of the eye in one of these directions indicates a paresis of an oblique muscle.

To read the chart obtained by joining up the fixation spots is therefore easy. The field thus found will be defective in the direction in which the defective muscle acts, and the direction of the defect points to the muscle or muscles. For example, if we find that the field is defective below, but more so on the nasal side, it would indicate a paralysis of the superior oblique.

To begin with, the green filter is placed over the eye which we suppose is affected, and we thereby get a contracted field. If we now transpose the filters and place the green filter over the good eye, we get an entirely different result, but one of great interest. Here the paralysed eye has to look at the red dots, and in some directions will have to do so with abnormal difficulty. The result is that in that direction an excessive enervation impulse will be given to the corresponding muscle in the good eye, and we will find its excursions excessive, and typical of what is known as "secondary deviation," where, as you remember, the good eye shows a greater amount of squint than does the paralysed eye. The field marked out by the green threads will be excessive in the direction of the paralysed muscle.

Quantitative estimation of the degree of paralysis is simple. If we consider merely the square of the centre red dots, the eye opposite the centre will have to move 15 degrees in each direction in looking at the sides of the square. The paralysed eye will fall short of this, and if we find, say, that it has moved only seven degrees in any direction, the amount of the movement would be represented by seven-fifteenths. If we have, moreover, kept a chart of the muscle field, we can, on the next visit of the patient, say for certain whether or not he has improved.

In old-standing paralyses we frequently get contracture of the opposing muscle. When this occurs we find on charting the field that the whole green field is shifted in the direction of the contracted opponent, as well as diminished in extent in the direction of paralysis.

The actual examination is simple for both surgeon and patient; it disregards the possibility of the patient using his better though paralysed eye for fixation, since if he does this we will get a reduced field complementary to it on the other side, and it gives us a permanent record qualitatively and quantitatively of the paralysis.

THE STEREOSCOPE IN MUSCLE WORK

J. W. Parker, Opt. D.

Kansas City, Mo.

Regardless of the stereoscope being a necessary part of our equipment for the treatment of muscle cases, a small percentage of those giving such treatments have any knowledge of the possibilities of the instrument.

My first experience with the stereoscope dates back about twenty years. The model used was a crude affair, differing from the dollar kind only in having an adjustable P. D. My object in buying the 'scope and outfit of cards was solely for the purpose of redeveloping the fusion sense in cases of cross-eye.

Not long after becoming familiar with the use of the various cards, a patient was sent to me, having what I regarded at the time, a very strange symptom. His refractive error was a low degree of myopic astigmatism in both eyes, a trifle more in the left than right. An oculist had already found that this man became blind in the left eye at the reading point although the distant vision came practically normal with the proper lens. After a series of experiments my conclusion was that he had acquired the trick of suppressing the image in the left eye in order to relieve the strain on a weak convergence.

After repeated trials he was able to get a little spasmodic vision in the left eye through the stereoscope while also using the right eye. This was accomplished by relieving the strain on the accommodation. Although the opthalmoscope showed nothing wrong, the stereoscopic tests indicated the macular field as being covered with small scotoma or blind spots.

It may be hard for those who have not thoroughly studied and experimented with such cases to understand how one could have approximately normal distant vision with a macular field in that condition. That this is possible, however, can be proven by the campimeter or stereoscope.

Going back to the case, I started the treatment by first exercising the vision of the left eye without attempting to bring about fusion. Gradually the blind spots disappeared. The next step was to develop the fusion desire and when this had been accomplished the next logical step was development of the adduction.

This case is mentioned as showing the necessity for getting the eyes in shape for prismatic exercises before attempting them.

I am just finishing with a case which shows the danger of not making a thorough examination including all the muscle tests. This patient is a lady 43 years of age who came to me about one year ago for her first pair of bifocals. She has been wearing glasses for over twenty years for an ordinary case of Comp. Hy. Ast. and while my examination showed her old lenses to have been correct for distance, she stated her eyes had never been comfortable. She is located just across the hall from my office and after the examination for lenses had been completed, and the phoria tests for distance and reading made, she was called away before the ductions were taken. The phoria tests indicated nothing wrong, the lack of a presbyopic addition which was clearly indicated seemed to account for the symptoms complained of, and the new lenses were supplied without finishing the examination.

I might add, the patient, although healthy looking, complained of symptoms which indicated a bad case of "nerves" in general. The 1.00D. addition to the same correction she had been wearing seemed to aggravate her condition so far as the general condition of the nervous system was concerned. In fact, the only thing which induced her to wear the glasses was a marked improvement in the reading vision. After a month or so she became somewhat accustomed to the bifocal part and ceased to complain. As she kept sending her friends to me for glasses it was natural for me to assume she was pretty well satisfied. About two months ago, she came in and informed me that unless something could be done for her, her eyes were going to completely wreck her nervous system. She was having headaches, drawing sensations in cords at back

of neck, dizziness and several other symptoms indicating eyestrain.

Going over her refraction very carefully could find nothing wrong. The phoria tests indicated a normal condition. When I made the duction tests, however, the trouble became apparent. Abduction 10. Adduction 9. Stereoscopic tests showed she had practically no stereoscopic faculty. Pictures, which to normal eyes, would represent waste baskets, dish-pans, etc., had the same appearance through the 'scope as with the naked eye. In other words, the sense of perspective was lacking and the pictures remained "flat."

She was troubled with a bad case of suspenopsia which alternated. After a few treatments the suspenopsia let up enough for me to find that the macular field of both eyes contained numerous scotomas or blind spots. Under daily treatment the blind spots gradually disappeared and the suspenopsia is practically cured. It is only within the last week or so that I have been able to get the adduction above 15. The last treatment brought it to 28 and the exercises will be continued until a reserve is built up. The annoying symptoms have gradually let up and I now feel certain of complete success.

This case is cited because it teaches several good lessons: First, that carelessness does not pay. Second, that maddox tests alone tell us very little and that little may be misleading. Third, that subjective examinations when properly conducted will bring out some things which can not be found by objective methods. There are thousands of cases where the ophthalmoscope, which is an objective instrument, will show an apparent clear macular field and yet, the campimeter or the stereoscope, both subjective instruments, will prove the macula to be very defective.

DYNAMIC SKIAMETRY AS AN AID IN FINDING VISUAL ACUITY IN MALINGERERS

Charles I. Saks, Opt. D.
Syracuse, N. Y.

Dynamic Skiametry gives a great amount of assistance in determining the visual acuity of a malingerer. Having first determined that the malingerer has vision, proceed with the cross dynamic retinoscope. This retinoscope has a card at each side and these cards should each contain several horizontal rows of small type. The cards can easily be made by cutting out several rows of type from an ordinary reading test card.

Suppose the working distance chosen is 16 inches. Ask the malingerer to read the 16-inch line. If he looks off in the distance and claims that he can not see the letters on the near point card, it can at once be seen that he is not looking at the near test card. This is also found out by watching the diameter of the pupil and most important of all the motion of the reflex. Of course, the static refraction must first be determined. Any one who uses the dynamic test can at once see whether a patient is looking at the near test card or in the distance. By watching the motion of the reflex the patient can be told at once where he is looking. This will scare him into telling the truth. He will therefore read what he can see. This will give the visual acuity when it can not be obtained by the subjective distance test.

For those who use a refractor head, results will be obtained still more easily. Having asked the patient to read say the 16-inch line, and the examiner working at 16 inches turns in lens power until neutrality is reached. Suppose it was determined that his right eye, in which he claimed he had no vision, had vision. Let us so suppose that we could not get him to read with that eye, in the distance test. We then proceed as follows: Have the patient fix the 16-inch line and ask him to read. In the meantime, while turning in lens power to neutralize the reflex, shut the left aperture. If he continues reading, then he is doing it with the right eye. With the dynamic retinoscope it can still be noticed whether he is looking at the near test card or not.

ON BITEMPORAL CONTRACTION OF THE VISUAL FIELD IN PREGNANCY

Dr. I. Abramowicz

Senior Assistant in the University Eye Clinic of Prof. Szymanski, Vilno, Russia.

From

The British Journal of Ophthalmology.

1.—Introduction

It is generally known that pregnancy may be the cause of many diseases of the eye. Among the morbid changes, which occur in the course of regular pregnancy, may be cited: ecchymosis of the lids and of the conjunctiva, accommodative and muscular asthenopia, hyperaesthesia of the retina and night-blindness. Besides these slight and fleeting disturbances, there occur in pregnancy serious diseases, such as inflammation of the cornea and the uveal tract, diseases of the retina and optic nerve.

The above-mentioned diseases which depend in the main upon conditions associated with pregnancy, namely, upon disorders of nutrition and disturbances of the internal secretion, are rare complications of pregnancy. According to Winckel their percentage is 1.4 per cent, according to Bastide only 1.3 per cent. This category contains only those diseases which are closely associated with pregnancy, usually recurring in subsequent pregnancies and disappearing after delivery or abortion.

Up to the present time no constant changes in the visual apparatus in connection with normal pregnancy, such as those found in the hypophysis, suprarenal and thyroid glands, were obtained.

Bosse (1900) tried to show that 75 per cent of all women in a normal pregnancy show some disorders of the optic nerve, such as congestion and oedema of the disc, but the observations of Bosse were not confirmed by the investigations of other authors, such as Sandmann (1901), Polte (1905), and Majewski (1910).

II.—Historical sketch concerning the bitemporal contraction of the visual field in pregnancy

In his research on visual fields in pregnancy Finlay (1922), as the result of 31 observations concluded, that "during pregnancy there often occurs as a result of the normal hypertrophy of the pituitary gland in connection with this state, a compression of the chiasma which manifests itself by changes in the visual fields in the nature of a bitemporal contraction."

Finlay's work, read at a meeting of the International Congress of Ophthalmology, Washington, April, 1922, awoke much interest among those present. In the discussion Maud Carvill stated that she also had examined the visual fields of 67 gravid women and found that 89 per cent showed bitemporal contraction of greater or less extent. The contractions were more marked in multiparae.

For the sake of historical exactness I must add that bitemporal contractions of visual fields in pregnancy had often been observed before Finlay. Thompson (1901) noticed a case of bitemporal hemianopsia with optic neuritis in a young gravid person. Similar cases were published by Reuss and Nolen (1908); Bellinzona and Tridontani (1904) noted in 24 gravid women, with normal acuity of vision, changes in the visual fields in the nature of a bitemporal contraction, which increased as the pregnancy progressed and were more obvious in primiparae. The colour-fields were concentrically contracted. Postpartum all changes disappeared. Forti (1910) also noted in pregnancy a contraction of the field for white, and that the nasal part was less contracted than the temporal. These alterations appeared chiefly in primiparae but did not progress in the later period of pregnancy. The limits of the colour-fields showed some interlacing.

Bellinzona, Tridontani and Forti explained the disorders of the visual fields by vasomotor disturbances, similar to those occurring in hysteria.

Nevertheless the views of authors, concerning the existence of any contraction of the visual field in a regular pregnancy, were not all at that time, compatible, because Polte (1905) found quite different results, when in 12 cases of normal pregnancy he observed no trace of changes in the visual field. Berger and Loewy (1906) also rejected the possibility of the existence of such changes.

More careful studies on the question of hemianopsia in normal pregnancy date from Igersheimer (1916) after Finlay and Carvill published their works, explaining the changes described by the mechanical pressure brought to bear on the chiasma by the enlarged pituitary gland. This based the pathogenesis of hemianopsia during normal pregnancy on quite different foundations to those of previous authors. It is true that Nolen (1908), citing a case of his own, advised in certain diseases of the eye, accompanied by alterations in the visual field in pregnancy, to take into consideration the lesion of the chiasma produced by the hypertrophic pituitary body. Reuss interpreted also in the same way the appearance of temporal hemianopsia in one of his patients in the course of the fourteenth, fifteenth, and sixteenth pregnancy; but these observations concerned only single and rare cases.

Finlay's investigations were repeated by Lohlein (1923) who confirmed in a series of 54 cases, in 78 per cent the temporal contraction of visual fields in the last month of pregnancy. This contraction usually increases until the day of delivery and disappears on the tenth day after it. Defect for colours, especially for red and green, precedes that for white. The alterations appear more frequently in multiparae and in them the return to the normal state takes more time.

According to Lohlein the examination of the visual fields before delivery may give an idea of the degree of the hypertrophy of the pituitary gland. If it could be proved that there exists a dependency between the extension of the field contractions and the force of the labour pains, examination of the visual fields before delivery might indicate, so Lohlein thinks, whether the patient may expect normal, feeble, or strong pains.

Prompted by Professor Szymanski I have examined in the Obstetrical Clinic of the University and the Obstetrical Department of the District Military Hospital in Vilno, a series of visual fields in pregnant women.

While I was engaged in this research observations were published by Schoninger, Holm, Stargardt and Schall, Beckerhaus, Metzger, and Richter contradicting the results of previous authors. The work of Schoninger was founded upon 24 cases of normal pregnancy, that of Holm upon 45, Stargardt and Schall upon 58, Beckerhaus 150, Metzger 56, and that of Richter's upon 81 cases. All these investigators found in only three cases slight bitemporal contractions of the visual fields. Meantime de Schweinitz (1923) and Lloyd Mills (1924) confirmed the existence of the changes in the visual fields as described by Finlay and Carvill. Ashikaga (1924) agrees with the opinions of Finlay and Lohlein, basing his belief on 20 cases. He adds, however, that his measurements demonstrate more contracted limits of the visual fields in primiparae.

III—Technique

One of the main causes of this striking contradiction in the views of the investigators is the diversity and inaccuracy of the investigation of the periphery of the retina in general. Although the question of uniformity of the perimetry is of great importance nevertheless definite results have not yet been obtained. Taking into consideration the imperfection of perimetry, I started, when elaborating the technique of my inquiries from the foundation that the measurements should be, as far as possible, in uniform conditions of illumination, contrast, visual angle, and other factors having preponderating influence on the size of the visual field.

In my investigations I made use of Forster's perimeter, for as it is known (Brudzewski, Comberg, Peter, de Schweinitz) this instrument is the most satisfactory for investigating the functions of the peripheral parts of the retina, and therefore to record the contraction of the outer limits of the visual field, which is the subject of my investigation.

The perimeter in use had a radius of 300 mm., 180° in extent; the breadth of the dead-black arch was 7.5 cm., the

diameter of the fixation carrier 1 cm., the diameter of the test-object for white (as a rule) 5 mm., then the visual angle 3/300; the color tests were 10 mm. in diameter; all tests were circular and they were moved by hand. Test-objects of various sizes (3 mm., 5 mm., 10 mm.) were also used. I did not make use of the self-registering instrument on account of its defects: (1) the motion of the sliding object is usually accompanied by a murmur; (2) the patient first sees the projecting edges of the carrier; (3) the black colour of the carrier wears off after long use, and consequently confusing reflections appear.

The manual moving of the test-object has also this advantage, that by turning the long handle quickly (while the test is attached on one side of the dark cartoon disc attached to the handle) we have the possibility of determining whether the patient really sees the test-object without having his attention turned to it.

In order to detect the early symptoms of lesion of the chiasma, that is the slight contraction outward and upward, Walker, Cushing and Hill recommend the use of a very small test-object of 0.3 mm. in diameter. Hess and Kolner, however, consider that, when using such a small test in the examination of the peripheral limits of the visual field, pseudo-contractions appear, which can with difficulty be distinguished from real ones. The local adaptation of the retina (Lokaladaption) and the formation of false scotomata and contractions depend upon the facts that very small tests become invisible in the peripheral parts of the visual field, unless moved with great speed.

The movement of the white test (the coloured test will be described later) was carried out at medium rate from without inward. It is known that too slow a movement of the test fatigues the eye and causes the local adaptation, while too fast a movement renders the eye insensible to the test-object. The movement of the test-object was a steady and even one.

In discussing the rapidity of movement of the test I can not pass over in silence the work of Kestenbaum (1924), concerning peripheral perimetry. Kestenbaum stated that the eye perceived in the most peripheral circumference of the visual field only the motion of the test-object, but not its white colour. If the test being in the limits of "sensation of motion" is not moved, it will become imperceptible, when it is in the limits of white sensation then, even in the absence of movement, it is perceived. In normal cases the difference between the respective boundaries when using the middle-sized tests, possesses no clinical meaning, on the contrary, in pathological cases there appears a rather considerable dissociation between these limits. In several cases of normal pregnancy I observed the visual field in the above-mentioned way and consequently the difference between the limits of "sensation of motion" and "sensation of white," reached from 5° to 10°. In testing the field for colour saturated colours were used. The movement of the test was performed centrifugally, quickly and steadily, because according to Hess, unequal and too slow a motion of the coloured test would cause the above-mentioned local adaptation. The patient did not know beforehand what colour was coming. The results were only noted when the patient perceived the right colour. I made my observations with red and green and in diffused daylight. Only persons with normal colour-sense were examined.

Engelking's colour test-objects as previously used were found to contain impure colours, so that with them the boundaries for the red and green are much contracted. The recognition of saturated colours is easier, and particularly that of the gradual transformation of a saturated colour.

The measurements of the visual field were made in diffuse daylight in a room having a large window which looked to the north. Many a time I have been obliged to make my observations at night by an electric lamp (100 volt), placed behind the head of the patient in such a manner that the arm of the perimeter might be equally illuminated in all meridians. In all measurements I took care that the line uniting the eye of the patient with the centre of the perimeter should run strictly horizontally, as this has a marked influence on the extension of the vertical meridians of the visual field. I also paid attention to the prevention of lateral movements of the

patient's head, as any neglect of this considerably alters the boundaries in the horizontal meridians of the visual field. During the tests I stopped for a few minutes to rest the patients, as the tests being of relatively long duration, would weary them, the more so since women at the termination of pregnancy are easily fatigued.

Before examination of the second eye I made a longer pause so that the eye, which had been occluded, might be adapted to the illumination.

To avoid fatigue I tested only in eight meridians. Habitually I began my tests in those meridians in which I expected the least changes, passing on to more careful measurement of the most threatened meridians, viz., up—outwards, because it is here that the earliest changes of the visual field, in cases of a compression of the chiasma by the enlarged pituitary gland make their appearance (Cushing, Wilbrand and Saenger).

In noting the results of my observations in recording the limits of the visual field, I made use of the method suggested by Uribe Troncoso, founded on the principle of always considering he subject in front of the observer, his right side facing the left hand of the latter. Among others this method facilitates the marking and the interpretation of the findings.

In order to compare the results of the visual field as observed in pregnancy with physiological limits I made measurements in ten cases of nulliparae.

Contractions of 5° were considered to be within the physiological, especially with concentric contraction and when examining with colour-tests. All observations were made by myself.

IV.—Results

I have examined the visual fields of 81 patients in the last month of pregnancy. The tests were frequently taken on the actual day of parturition. In those cases in which I found contractions I made further investigations on the ninth day after delivery. Forty-six of these persons were primiparae: 19 were in their second pregnancy; 10 in their third pregnancy; 2 in their fourth; 3 in their fifth; and one was in her twenty-third pregnancy. These women were of good intelligence and between 19 and 43 years of age.

The results of my investigations are as follows: In two cases (the twenty-third and fifty-eighth) I found a slight temporal contraction for white and in one of these cases (the twenty-third) only on the right side.

The twenty-third case, second pregnancy: (the location of the meridians of the perimeter chart is so arranged that the zero is placed at the nasal extremity of the horizontal meridian in each eye and the degrees are counted on the upper semicircle to 180° at the temporal extremity) in the meridian 120° at 55°; in the meridian 150° at 65°; temporally outward (meridian 180°) at 80°. The boundaries for green were found on this side concentrically contracted. The fifty-eighth case, third pregnancy: bilateral contraction of 10° out-upward for white on both sides. Three times (the fourteenth, fifty-third and fifty-fourth cases) I found a temporal contraction only for colored test-objects, namely: the fourteenth case, third pregnancy, for red outward, 30°; for green outward, 10°. The fifty-third case, first pregnancy: change in the nature of a temporal contraction (outward, 15°) for green on both sides.

The fifty-fourth case, first pregnancy: temporal contraction for red and green only on the left side. For red outward, 30°; for green outward, 10°.

In one case (fiftieth) there appeared a concentric contraction for red and green, and in the forty-sixth case there was a relative scotoma for green.

Many authors (Birch-Hirschfeld, Comberg, Ferree and Rand, Foucoult, Gleb and Goldstein, Hess, Kleinsasser, Simon) state that there exists in a great many normal eyes scotomata, particularly in the peripheral areas of the visual field and especially after a certain fatigue of the retina. The change in the forty-sixth case can be reckoned with the so-called "physiological." If I do not count the fiftieth case with concentrical contraction for colored tests, which I must treat with the greatest circumspection, there will remain as a result of my observations five cases with slight temporal contractions of the visual fields.

The above-cited alterations appeared twice in primiparae (on 46 observed primiparous gravid women); once in the second pregnancy (on 19 women in the second pregnancy) and twice in the

third pregnancy (on 10 women).

The visual field returned after delivery to its normal state in five cases (the twenty-third, forty-sixth, fiftieth, fifty-third, fifty-eighth). In two cases further observations could not be made. The above-mentioned contractions, observed in my five cases, might be considered as a sign of fatigue of the eye, or as a stigma hystericum, which occurs, as well as other hysterical disturbances in the last period of pregnancy, for according to Ronne, in hysteria the possibility of finding various forms of the visual field, including even hemianopsia, must be taken into consideration (Hippel, 1925).

Nevertheless, from the observed alterations in the nature of a bitemporal contraction and from the normal hypertrophy of the pituitary gland during pregnancy, the possibility only of a compression, though not in numerous cases, of the chiasma in pregnancy by the enlarged pituitary gland, as manifested by changes in the visual fields must be considered.

As is known, the hypophysis in pregnancy undergoes only in its anterior part any considerable anatomical and functional change. According to Bumm and Seitz the augmented function of the anterior glandular part of the hypophysis is in connection with hypertrophy of the matrix and often occasions in pregnancy acromegalic changes in the face, hands and feet. Various observers long ago surmised that the pituitary was enlarged in pregnancy (Comte, Launios and Mulon, Morandi, Querrini, Cagnetto). The above question is treated by Erdheim and Stumme (1909) with great minuteness. As Erdheim and Stumme assert, the average weight of the pituitary gland in nulliparae between 21 and 40 years of age, is 61.8 cg.; its size in transverse measurement (breadth) is 14.4 mm.; in antero-posterior sagittal measurement (thickness) 11.5 mm.; in vertical measurement (height) 5.9 mm. In women in their first pregnancy the figures are as follows: Weight 84.7 cg.; breadth 15.6 mm., thickness 11 mm., height 7.5 mm. The figures in multiparous women are respectively: weight 106 cg., size 17.5: 11.0: 8 mm.

From the fourth month of pregnancy the pituitary gland begins gradually to increase in weight and size, and several weeks after delivery it begins to diminish. The increase of the hypophysis is more marked in multiparae. In comparing these figures it is seen that the overgrowth of the hypophysis takes place only in transverse and vertical measurements (in the last only imperceptibly) while the sagittal diameter remains unchanged on account of the existing obstacles from the bones. As Zander (1897) maintained there exists between the operculum sellae and chiasma a cisterna chiasmatis 1-2.5 mm. in height, so the pituitary must at least increase 5 mm. in height to exert any compression on the chiasma. In several investigations of Erdheim and Stumme such increase took place in multiparous women. As a result of their own investigations Erdheim and Stumme came to the conclusion that during pregnancy the compression of the chiasma cannot be considered as normal. In exceptional cases, such as a high situation of the hypophysis, a flat sella Turcica, or an enlarged cyst of Rathke and considerable increase of the vertical measurement of the hypophysis, a compression of the chiasma may occur in pregnancy.

There has, recently, appeared a work by Parsons Schaeffer (1924) concerning the anatomy of the chiasma, throwing much light on the question of hemianopsia in pituitary tumor and assisting to clear up the problem. From Parsons Schaeffer's investigations it is noted that the visual phenomena in connection with the diseases of the hypophysis are not always an early symptom, and though bitemporal hemianopsia is the most common visual field defect disturbances of quite another kind appear, sometimes an absolute want of visual changes, above all in the first period of the disease, when the chiasma not being fixed to the base of the skull, yields to compression. According to Parsons Schaeffer, whenever in those cases the chiasma lies behind the dorsum sellae (in 4 per cent), or when its small part is to be found in front of the dorsum (in the majority of his cases) tumors of pituitary gland may attain great dimensions and make their way between the optic nerves, and yet may exert no pressure on the chiasma.

Considering particularly the question of the hypertrophy of the pituitary in pregnancy it would appear from the investigations of Erdheim and Stum-

me, that compression can only appear in isolated cases. Ashner (1924) agrees with the opinion that the hypophysis rarely attains in pregnancy such a dimension as to produce a compression of the chiasma.

Individuals with a special susceptibility to disturbance of the endocrine glands are particularly liable, in pregnancy, to such disturbances, as, for instance, in the case of Gross (1924) when, after delivery a complete bitemporal hemianopsia accompanied by "distrophia adiposogenitalis" appeared, or that of Frankl (1925), when in the seventh month of pregnancy a transitory amaurosis with acromegaly occurred.

Returning to my own observations, I must note that in contradiction to the results of Finlay, Carvill, Lohlein and Ashikaga, I have only found in a few cases of pregnancy temporal contractions of the visual field. Even in the eighty-first case (twenty-third pregnancy) I failed to find any alterations of the visual field. The examination with the Roentgen rays demonstrated no changes in the sella Turcica. The case of twenty-third pregnancy merits attention in this respect, that it concerns a patient in whom four months previously a thyroidectomy had been performed. Experimenters with thyroidectomy, performed on animals, (Stiede, Gley, Biedl, Simpson and Hunter) have observed that as a consequence of these experiments a considerable hypertrophy of the pituitary gland often arises, which might show itself in men by corresponding changes in the visual field, although this did not take place in my case. It is possible that the relatively short time that elapsed from the operation may account for this, though my observation is in accordance with that of Kranz (1925).

I also desire to comment on the question hinted at by Lohlein, as to the possibility of the existence of a proportional relation between the degree of the hypertrophy of the pituitary gland and the strength of the labor pains.

The comparison of the results of my inquiries on the visual field with the strength of the labor pains appears from my material as follows

	Normal visual fields	Temporal contraction
Feeble pains	17	1
Middle	23	3
Strong	31	1

The examination gave negative results. Holm obtained the same results

V.—Conclusions

I consider that as a result of my observations I am justified in making the following conclusions:

(1) The manner of clinical investigations of the visual field at present in use, being a subjective method, is therefore affected by numerous physical defects and errors (illumination, colour-tests, the contrast and the size of the object), which must be taken into account in the interpretation of the results.

(2) In few cases of normal pregnancy (6 per cent) there occurs in the last month of pregnancy a slight temporal contraction of the visual field, which may be occasioned by the hypertrophy of the pituitary body.

(3) On the tenth day after delivery the visual field returns to its normal state.

(4) I did not find any relation between the appearance and extent of the field contractions and the strength of the labour pains.

References

1. **Aschner**—"Biologie und Pathologie des Weibes," von Halban, pp. 635-736.
2. **Idem**—Medizinische Klinik, Nr. 48, 1924.
3. **Ashikaga**—Nippon Sankakai Zaschi, Nr. 2-3, 1922; ref. Klin. Monatsbl. f. Augenheilk., 1924.
4. **Bastide**—These de Paris, 1893.
5. **Bosse**—Augenhintergrund bei Schwangeren. Arch. f. Augenheilk., p. 167, 1900.
6. **Bellinzona and Tridontani**—Ref. v. Hippel.
7. **Berger and Loewy**—Uber Augenerkrankungen sexuellen Ursprungs, p. 90.
8. **Beckerhaus**—Zeitschr. f. Augenheilk., p. 180, 1925.
9. **Brudzewski**—Clinical perimetry, 1925. (Polish.)
10. **Bumm**—Grundriss zum Studium d. Geburtshilfe, 1924.
11. **Carvill**—Amer. Jl. of Ophthal., No. 11, p. 885, 1923.
12. **Erdmann and Stumme**—Ziegler's Beitrage fur Pathol, Anatomie, p. 132, 1909.

13. **Finlay**—An Internat. Congress of Ophthal., Washington, p. 144, 1922.
14. **Forti**—Klin, Monatsbl. f. Augenheilk., p. 141, 1910.
15. **v. Hippel**—Die Krankheiten d. Sehnerven. From Graefe-Saemisch Handb. f. Augenheilk.
16. **Idem**—Arch. f. Psychiatrie u. Nervenkr., 1925.
17. **Holm**—Acta Ophthal., p. 92, 1924.
18. **Igersheimer**—Bericht d. Ophthal. Ges., Heidelberg, 1916.
19. **Kestenbaum**—Bericht d. Ophthal. Ges., Heidelberg, p. 37, 1924.
20. **Kollner**—Untersuchungsmethoden. From Graefe-Saemisch Handb. f. Augenheilk., 1925.
21. **Kranz**—Klin. Monatsbl. f. Augenheilk., p. 456, 1925.
22. **Lohlein**—Monatschr. f. Geburtsh. u. Gynak., p. 129, 1924.
23. **Majewski**—Przeglad lekarski (Polish), 1910.
24. **Metzger, Simon and Weinberg**—Monatschr. f. Geburtsh. u. Gynak., p. 140, 1925.
25. **Nolen**—Berl. Klin. Wochenschr., p. 2177, 1908.
26. **Polte**—Klin. Monatsbl. f. Augenheilk., Vol. XLIII, p. 531.
27. **Reuss**—Wiener med. Wochenschr., Nr. 19, 1908.
28. **Richter**—Klin. Monatsbl. f. Augenheilk., Vol. LXXV, p. 475, 1925.
29. **Schaeffer Parsons**—Anat. Record, 1924, ref. Zentralbl. f. Ophthal., Vol. XV, p. 78, 1925.
30. **Schoninger**—Klin. Monatsbl. f. Augenheilk., Vol. LXXII, p. 526, 1925.
31. **de Schweinitz**—Trans. Ophthal. Soc., U. K., Vol. XLIII, p. 12, 1923.
32. **Stargardt and Schall**—Monatschr. f. Geburtsh. u. Gynak., p. 75, 1925.
33. **Wickel**—Ref. v. Hippel.
34. **Zander**—Deutsch. med. Wochenschr., 1897.

SYMPTOMS OF GLAUCOMA

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All the old chronic cases of glaucoma finally make their way to the hands of the physician or oculist, therefore the information desired by the refractionist must necessarily come from what is known as the acute glaucomatious patients.

Any well informed practitioner can give his glaucoma patients proper care providing he can make a diagnosis; but a diagnosis is often difficult and sometimes impossible without a working knowledge of the ophthalmoscope. The symptoms of glaucoma are unlike those of any other disease and they are usually so well marked that a diagnosis is within the reach or grasp of every refractionist.

If a systematic examination of the eye is made it will not be difficult to make a diagnosis of glaucoma.

One needs first an ophthalmoscope, a perimeter, and a tonometer. If he has no perimeter, then a piece of black cloth of the dimensions here given, 36″ x 40″ with a horizontal line of chalk drawn across it, a circular line like a trial frame drawn from edge to edge, numbered every 4 inches around the circle, with a target spot in the center. Place this black screen one meter in front of the patient. Cover one eye at a time and move first white and the colored markers around on the field placing indicators or marks at each point where the marker disappears and reappears. The field of vision will in this way be charted and any scotomas will be plotted. As a rule the field will be constricted when glaucoma is present.

Symptoms.

A patient usually over forty, complains of some loss of vision, pain in the eyes, or in the frontal portion of the head, observing a picture of the rainbow around the light, looking at the moon can see several moons, when these symptoms are set forth by the patient you may suspect glaucoma, at this particular point the refractionist believes it desirable to simplify the subject by omitting some of the details involved in the examination, here is where many make their mistake. I will say that any eye that has high tension may be looked upon as glaucomatious, and when the tension is above normal, it must be reduced in some way because of danger of the loss of vision.

Causes of High Tension.

Injuries to the eye, or operations upon the eyeball; or inflammation of the eye causing adhesion of the iris to the lens; causing many eyes to become hard; or have high tension, which may appear and destroy the eye

without any known cause.

Examination of the eye from before backward in a typical case would be as follows: Cornea hazy; anterior chamber shallow: aqueous cloudy, iris muddy; pupil dilated; lens clear, pulsating retinal arteries and nerve head cupped.

Field contracted to the nasal side, all of these symptoms need not be found, but enough of them to establish a diagnosis can usually be found in glaucoma.

If all of these tests are made in doubtful cases, the refractionist would not make many mistakes in diagnosing. When the condition has been diagnosed in the eye complained of, taking the tension and field of the other eye is imperative. The prompt institution of treatment in the incipient stage often arrests the progress of the disease.

Period of Incubation; or Prodromal Stage.

This is characterized by sudden failure in the amplitude of accommodation, with a desire to resort to stronger glasses for reading, temporary obscuration of vision, either dim vision or quite complete loss of sight, lasting for many minutes and attacks of foggy vision. It is of the utmost importance that glaucoma be recognized if possible, in its very incipiency. The most common glaucomatious attacks have been mistaken for a cold in the eye, for iritis (and the disease frequently has been aggravated by the instillation of atropine or other mydriatics, which in almost all circumstances is contra-indicated), for neuralgia, and for reflex ocular pain. The condition of the pupil, the diminished depth of the anterior chamber, and the increased tension of the globe are the symptoms which should prevent so fatal an error.

Ophthalmic migrane sometimes simulates glaucoma, inasmuch as it may be associated with increased intra-ocular tension, arterial pulsation in the fundus, and contraction of the visual field.

The differential diagnosis of simple chronic glaucoma and atrophy of the optic nerve has been referred to and presents considerable difficulty. The absence of constant increased tension in the simple form of the disease, or at least its doubtful presence, removes an important diagnostic point. In glaucoma the color field presents a restriction corresponding with that of the white field, while in atrophy the peripheral color vision, especially for red and green, is markedly deficient.

What is Glaucoma?

It is abnormally high tension of the eyeball, with the phenomena intimately associated with such high tension. The increase of tension may be brought about either by increase of fluid taken from the blood vessels into the eyeball itself or by the checking of its escape from the eye.

The Treatment.

No treatment will restore the vision that has been lost more than two or three weeks. To permanently check the process, some operation must be made on the eye.

ABSTRACT DEPARTMENT

Optometric and ophthalmic Journal articles and reprints to be abstracted should be sent to Dr. G. L. DuPlessis, 209 Yeates Building, Minneapolis, Minnesota. Only papers of interest to optometrists will be reviewed in this department.

Determination of the Phorias by Prolonged Monocular Occlusion. C. A. Young. The Eye, Ear, Nose and Throat monthly. Vol. 5, No. 8, p. 472.

Young describes this mode of procedure for use with patients showing one or more degrees of hyperphoria that are not relieved by prisms correcting one-half to two-thirds of the manifest error, and patients showing slight or varying degrees of imbalance who after careful refraction still complain of asthenopia.

An eye patch is prescribed to be worn over one eye continuously for a period varying from four to forty-eight hours. When the patient returns to the office he is seated at the trial case in a darkened room and the trial frame

with a Maddox rod over one eye is put in position, the patient is instructed to keep his eyes closed throughout the examination except while observing the relative position of the line to the light: after removing the patch the muscle balance is obtained in the usual manner.

It is important to have the patient keep his eyes closed or his eyes covered between observations of the line and light, in order to prevent as far as possible a desire for binocular vision.

In an analysis of twenty cases exophoria was present in fifteen. Following monocular occlusion, there was an average increase of the exophoria of 128 per cent for distance, and an average increase of 40 per cent for near.

Esophoria was present in five of the twenty cases; following monocular occlusion, there was an average decrease of the esophoria of 30 per cent for distance, and an average decrease of 20 per cent for near.

Hyperphoria was increased in eleven of the twenty cases, showing an average increase of the hyperphoria of 128 per cent.

Hyperphoria was decreased in three of the twenty cases, showing an average decrease of the hyperphoria of 71 per cent.

Hyperphoria was unchanged in six of the twenty cases.

Of the eleven patients showing an increase in the amount of hyperphoria, eight of them (73 per cent) were made comfortable with prisms, while three of them (27 per cent) either obtained no relief or were more uncomfortable with prisms prescribed in accordance with the findings by the occlusion test.

The average length of time one eye was occluded in this series was twenty-five hours, the shortest period was four hours, and longest period forty-eight hours.

Dr. F. W. Marlowe recommends occluding one eye for one week, while Dr. C. S. O'Brien reports very favorable results following monocular occlusion for periods of from two to three hours. T. O. B.

The Photoscope. J. I. Pascal. American Journal of Ophthalmology. Vol. 10, No. I, 1927.

This is a simple device for making retinoscopy easier and more accurate. It consists essentially of two parts. 1. A small plane mirror, set in a metal frame, 1½ inches wide by 3½ inches long, mounted on a stand or bracket. The mirror is pivoted on the back so as to allow it to be rotated on a horizontal axis. 2. A small, round, 10 or 15-watt, frosted, blue-violet electric bulb, with a one inch round aperture. The mirror tilted upwards, is placed in front of the patient on a level with his eyes; and the light is placed directly above the patient's head.

By means of this instrument the patient's line of vision and the examiner's line of observation are made entirely independent of each other. As the patient looks into the mirror, he sees the reflected blue-violet light which serves as his fixation target. The examiner, working with his retinoscope behind the photoscopic mirror, can move backwards and forwards, from side to side and up or down, without changing or interfering with the patient's point of fixation.

The blue-violet fixation target has special significance. For this reason: When we say an eye is focused for infinity, it is really in focus only for the yellow component of the light. It is out of focus for every other color, on account of the chromatic aberration of the eye. In fact it is then about one diopter myopic, for the violet light. Accordingly, focusing the violet light at 40 inches places the eye in the same condition as when focusing a white target 20 feet away. By using the distances suggested in the diagram the violet fixation target is about 50 inches from the patient and is equivalent to an ordinary target about 25 feet away. This long distance tends to relax the accommodation.

Moreover, this target is restful to the patient's eyes, and does not stimulate the form sense, which is the main incentive to accommodative action. By using, if desired, a 5 or 6 diopter prism, base in, over one eye, the convergence of less than one meter-angle is relaxed. This combination tends to make the patient's fixation passive and definite, both for accommodation and convergence.

In addition, and what is of the greatest importance, the examiner can, at all times, get as near to the macular region with his retinoscope, as is practically desirable. He need not disturb the patient, or direct him to look in

different places. By working above, below, or alongside the mirror, the examiner can refract the whole foveal region. Working within a radius of one inch from where the patient's visual axis cuts the mirror he can refract the eye to within about half a millimeter from the center of the fovea, and use that region which gives the clearest reflex.

Another great advantage is the fact that the examiner's line of observation is practically perpendicular to the refractive surfaces of the eye and the neutralizing lenses used. This obviates the irregular and often confusing shadow movements, due to obliquity of observation. The instrument can be placed at any distance chosen, and works equally well for any observation distance. The writer, for good reasons, prefers an observation distance of about 26 inches, arm's length; the mirror and stand about 20 inches from the patient, and the blue-violet light about 20 inches above the patient. This places the reflected image of the photoscopic light about 50 inches from the patient. To bring the image into view, the photoscopic mirror is tilted up through an angle of 20 to 25 degrees. Only the image of the light is visible, the patient cannot see any part of himself.

The instrument may also be used for making an ophthalmoscopic examination of the media of the eye. This is best done by placing the photoscopic mirror about 10 inches from the patient, and tilting it up through an angle of 30 to 35 degrees, so that the blue-violet target is visible. By viewing the eye above, below and alongside the mirror the media can be explored without disturbing the patient's fixation.

T. O. B.

Nystagmus. J. S. Haldane and T. Lister Llewellyn. The Optician, British, pp. 179-180, 1927.

In a paper read at a meeting on the Mining Institute of Scotland held at the Royal Technical College, Glasgow, Drs. Haldane and Llewellyn said that the prevention of the nervous affection known as miners' nystagmus had become a subject of considerable importance to mining engineers, owing to the amount of inconvenience, suffering and anxiety which it caused, and to the serious burden thrown on the industry by compensation. The majority of those who had studied the subject closely had concluded that the essential cause was the defective illumination given by the safety lamps used, and that was the conclusion of the committee (of which Dr. Haldane and Dr. Llewellyn were members) appointed by the Medical Research Council to investigate the disease, the corollary being that every effort should be made to improve lighting. That conclusion had, however, been called in question, particularly by so well-known an authority in ophthalmology as Dr. Freeland Fergus, in a paper recently read before the Institute, and by Dr. Robson, of Penarth, in a paper read before the South Wales Institute of Engineers. While Dr. Haldane and Dr. Llewellyn agreed that there was still much to be discovered as to the exact manner in which miners' nystagmus is produced and as to the conditions which favor its development, they did not think there was any real cause for doubting that defective illumination is its essential cause, and that it could be almost entirely prevented by an attainable improvement in illumination.

An Occupational Disease.

As an occupational disease miners' nystagmus was peculiar to coal-miners, and most commonly found among coal-miners working with hand safety-lamps. Photometric measurements showed that the light actually falling on the coal-face during work varied between 0.018 of a foot-candle in safety-lamp pits and 0.09 of a foot-candle in open-light pits (a foot-candle being the illumination produced by a light of 1 standard candle at a distance of 1 foot). As, however, the coal-surface was black, and reflected only about a tenth of the light falling on it, the illumination available for vision was only about a tenth of these figures. In no other kind of work was the available illumination even approximately so low as in the case of coal-miners working with the present ordinary hand safety-lamps, whether flame or electric lamps.

Limits of Adaptation.

Miners' nystagmus was uncommon in open-light pits and frequent in safety-light pits. It was almost unknown in the purely naked-light coalfields of Somerset and the Forest of Dean. In

Scotland the incidence was lower than in England, where safety-lamps were more generally used. Miners' nystagmus hardly occurred at all, to judge from American experience, in pits where electric cap-lamps were used.

Not Due to Infection.

The case against the conclusions that miners' nystagmus was due to poor light was (a) that improvement in illumination had been followed by an increase in the incidence of the disease, and (b) that the investigations on which they were based had been too limited. Dr. Freeland Fergus had commended Dr. Robson's suggestion that the disease was due to carbon monoxide poisoning, but elsewhere he threw doubt on this hypothesis. Apart from the clinical description of the disease Dr. Freeland Fergus' paper was largely negative, and did not shed any fresh light on the causation of miners' nystagmus. He thought that neurologists, pathologists and epidemiologists should be called in to investigate the disease. There was, however, not the slightest evidence that the disease was due to infection. No one had ever heard of a collier's wife or other persons not working in dim illumination contracting the disease.

As it was not economically possible to increase the reflecting power of the coal, the solution of the lighting problem must be, either to bring the light nearer the working-area, or to increase the candle-power and area of illumination given by the safety-lamp. The electric safety cap-lamp solved the problem in the first manner; the light was brought nearer and the rays fell at right-angles to the working-area. The lamp moved with the workman, thus providing a uniform and steady field of illumination free from shadows. The illumination given by one of these lamps might be ten times as much as that given by a standard safety lamp of the same candle-power placed 6 feet away. Unfortunately the cap-lamp, although universally used in America, had not been taken up well in this country.

It is contended that miners' nystagmus would be reduced to insignificant proportions if illumination in the mines would be materially improved. Mining engineers are urged to aim to improve lighting conditions in the mines and thus help rid miners' nystagmus and at the same time increase the working capacity of the miners.

J. I. K.

Observations on Glaucoma in Morgagnian Cataract. Dr. A. Knapp. (New York.) Trans. Am. Ophthal., Soc. Vol. XXIV, 1926.

In this paper Knapp records two cases of Morgagnian cataract accompanied by raised intraocular pressure. In the first case the pressure was raised before operation (T. 55 mm.), but improved under treatment with pilocarpine. During the operation, a combined extraction, the capsule gave way when grasped with the forceps. The nucleus was expressed and there did not seem to be much fluid cortex, the pupil remaining black. During convalescence the anterior chamber remained shallow and the tension low; a choroidal detachment was present. Later the tension rose to 55 mm. with a deep anterior chamber and steamy cornea. After a Lagrange operation the tension remained normal but there was considerable iridocyclitis with corneal opacity. The pupil was adherent to thickened capsule attached to the wound. In the second case the tension was also raised and reduced by treatment on two occasions before the performance of an iridectomy. Later the cataract was successfully extracted with blunt capsule forceps in the capsule. Recovery was uneventful and normal vision was regained.

In commenting on these two cases, Knapp considers that they are suggestive of a low-grade uveitis in which the increased tension is the most striking feature. He does not agree with Gifford in thinking that the liquid cortex is the toxic source of the disturbance but inclines to the opinion that the displaced nucleus must be the cause of some mechanical irritation of the ciliary processes and thus produce the glaucoma. Extraction in the capsule is undoubtedly the operation of choice in these cases, but is technically by no means easy of performance owing to the condition of the capsule.

J. I. K.

SPECIAL REPORT

THE INTERNATIONAL OPTOMETRIC ASSOCIATION

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The status of the optometric profession outside of America is deplorable. In America, organized effort has succeeded in placing the profession on a footing of security. Every state has its optometry law; its educational standards, and its state board of examiners. Non-competents are barred from practise, and any attempt at malpractice by registered men is punished to the extent of the law.

These regulations have created the Ethical Optometrist. Ethics in a profession are standardized decrees laid down by members of that profession intended to protect the principles of those engaged in practice. They are based on environment and scholastic training. They are only feasible when the profession is regulated by statute, and when the profession thus endowed, assumes the prestige due it.

But it is not so with the optometric profession abroad. In England, France with their colonies, Germany, Austria and other countries on the European continent the practise of optometry is not regulated by law, due to lack of effort on part of those who practice it. Whether this is due to the absence of s t r o n g professional organizations among the optometrists, or to lack of desire for such regulations for obvious reasons does not matter, although this writer, like many others, is of the opinion that it is the former and not the latter reason that is the cause for this condition.

This unrestricted traffic in the practise of optometry is a haven for the charlatans, fakers and cutthroats. They prey upon the ignorance of their "customers" and reap a harvest. This exploitation of optometry is a menace to the profession and a detriment to those men whose intentions and practises are honest and sincere. The methods these quacks resort to defame the profession and all those who practice it, with the result that the profession stays dormant.

The existing organizations are too weak to attempt to force legislation. They feel that they haven't the proper backing. The general public evidently doesn't care whether the men whom they entrust with their eyesight are responsible and competent persons or not, or they would force them to prove their responsibility and competency by legislations. The more ethical and conscientious optometrists in those places have their hands full trying to undo the wrongs of the quacks, for the good of their profession. They are always on the alert trying to combat those charlatans whose greed for satisfying their own ends besmirch the good name of the profession and lessen the morale of the most ardent workers for the elevation of the professional standards of optometry. In some places restrictions, not by legislative process, but by decree of the governmental medical officers, hinder the practitioners in the performance of their work to the best of their ability. All these factors are responsible for the dormancy of optometric legislation.

There is need for some sort of outside stimulus to give them that impetus, that "push" ahead. American optometrists by virtue of their position, experience, attainment and prestige, are called upon to do their duty by their fellow optometrists abroad, to help them reach into the realm of professional attainment, by creating an International Association of Optometrists.

European optometrists are in accord with the American propounders of this movement that such a step would raise the status of the optometric profession there. This would give them the incentive to strive for public recognition, legislative protection and scholastic perfection. As conditions are today, the optometrists abroad have no definite status and nothing can prevent the curtailment of their practises by adverse legislation. The very pretense for their practise can be disputed, because that practise is unauthorized nor regulated by law.

If optometry is to become a universally recognized profession, then there must be created one unified association of practitioners who bear that calling. An association that would bring men who practice refraction the world over, under synonymous cognomen, in closer contact with each other for better understanding and learning.

The influence of this association will have a tremendous effect upon all engaged in refraction. The American Optometric Association with its constituent organizations has done more to elevate optometry and give it its present place among professions in this country than any other factor. The passage of the optometric laws was brought about by individual sacrifice and organization. It was the organization in back of the individuals that inspired them to do what they did. These builders of the profession could point to numbers when they had to, because they had organization. They could point to standards—and promise to do better, for the same reason. Organization made their cause popular—and it won.

Optometrists abroad if properly organized could be raised to the same standards as in America. Organization brings about better educational standards, professional ethics, and professional prestige. Legislation to regulate this practice will be the inevitable outcome, with the result that in very little time Optometry there will attain that for which it has been striving since its inception.

American optometrists must head this movement. First, because their participation will lend prestige and gain for it the proper recognition from the start. Their experience in organization matters is of utmost importance. Their educational standards, scientific attainment, and code of ethics are of basic importance. Second, because of priority, American optometrists are entitled to this place because of their position in this field of work. They possess the necessary experience in every phase of organization, and above all they have succeeded in creating optometry a science—and this organization will be of a scientific nature.

The unwritten law of professional ethics is that feeling which one professional man has for his colleague. It is a sense of mutual understanding based on a feeling of profound esteem and consideration both from the professional standing and scholarly attainment. This is apart from the accepted code which every ethical professional man pledges to uphold and respect. Organization has been directly responsible for this metamorphosis of the old time jeweler-watchmaker-optician into an honorable, ethical, scientific optometrist. The most remarkable thing about this change is that it has occurred almost overnight. The competition for business has been replaced with that for knowledge; the greed for material things, for the greed after the spiritual.

Organization has created a new profession. As the keynote of success they took this phrase: "Give as much as you can no matter what you get in return;" and they succeeded.

American optometrists owe it to the optometrists across the seas and to themselves to establish better relations, clearer understanding, scientific intercourse for the betterment of all concerned, and optometry in particular.

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DOES PROFESSIONAL OPTOMETRY PAY?

There is a general exodus of optometrists from the ground floor to upstairs or office building locations all over the country. In the last few months two prominent national optometric leaders, Dr. Tom Martin of Pittsburgh, Pa., and Dr. Chester H. Johnson of Philadelphia have joined this movement. Our optometric publications are carrying articles discussing this question; and, very closely linked with this, the question of professional and commercial optometry. It seems more and more that the public will settle these two important questions, and that at an early date.

Naturally, the medical, dental and law professions with their upstairs and office building locations, are doing much to educate the public in this regard.

Practicing professional optometry is much like walking a tight rope; if we are not careful, we become lop-sided and fall on one side or the other, ultra-professional or ultra-commercial. Optometry suffers from both causes. We must keep our balance, as the dental profession renders a complete dental service, including laboratory; we, as optometrists should render a complete optical service.

A few weeks ago, the writer was invited by an optometric friend to visit him, and inspect his new establishment, as he had just bought a $25,000 two-story building on main street of a county seat. Town, 40 miles from Oklahoma City, and was equipping new optometric offices on the second floor. Here is his story:

On October 1, 1915, Dr. B. R. Hubbard came to Shawnee, Okla., with a trial case and only $72.00 in cash, with which he bought $40.00 worth of reception room furniture, having rented an office over one of the centrally located banks. Dr. Hubbard states that this was every dollar he had in the world at that time. Today, he owns two nice Buick automobiles, has just purchased a main street building at a cost of $25,000 from which he derives $510 per month rent exclusive of the six office rooms he occupies as optometric offices, with a floor space of 25x60 feet. He has a large completely equipped examining room, six surfacing machines, four edging machines. Two girls operate these machines; he has a bookkeeper, a reception and examining room assistant. His office fixtures, equipment, machinery, stock and materials invoice $11,000. He has had a gradual increase in his income each year. In eleven years his fortune has

grown from $72.00 in 1915 to $65,000 in 1927.

Dr. Hubbard has been upstairs all this time, and says he has never received a dollar other than his income from optometry. Dr. Hubbard is a member of his local, state and national optometric associations. He is a graduate of the Los Angeles College of Optometry. He is a tireless worker for optometry, an example of the doctrine of "Greater service through increased knowledge." What he has accomplished in this small town can be accomplished anywhere in the United States, with the same amount of hard work and with an eye to the interests of professional optometry.

Of the fourteen special board bills introduced in the recent Oklahoma legislature, the optometry bill was the only one that successfully passed both houses, and was signed by the governor. The chairman of the legislative committee informed me that there was much talk among the legislators, and the general opinion was that merchants and commercial men should not be licensed or have special boards, as this would be class legislation, and they were opposed to any board, except purely professional boards. So the only right we, as optometrists, can claim to licensing privileges is, as a professional body. This followed by Gov. Smith's action in New York, should be both a lesson and warning to those who would commercialize optometry. Professional optometry does pay, but must be practiced as a profession.

W. S. Farmer, Opt. D.

PRICE ADVERTISING

Recent reports from Louisville indicate that the Kentucky State Board of Health received a set back in the courts when it attempted to prohibit an optometrist from using display space in a Louisville newspaper. The ads this man had run were in no way misleading but had merely not been passed upon by the Board. It seems that in the state under discussion all optometrists are made to sign a pledge giving the Board the authority to pass upon any publicity matter they may wish to use. This "Pledge Business," the court held unconstitutional, saying, and we believe justly so, that the law in no way gave the Board this right.

Naturally this decision was hailed with great glee by the shiester optometrists all over the country. A great victory had been won by those whose method of getting rich quick was to fill the papers full of the "come-on" type of price advertising, and then proceeding to fleece the victims as they arrived.

But on sober second thought one can easily see that this is not the case. No victory was won and the decision will nearly straighten out a situation that has needed adjustment in Kentucky ever since this ruling was made by the Board.

The Board had the power and still has it to stop misleading price advertising. This is in the law. The only thing it did not have the power to do was to issue and enforce the pledges it has been passing around during the past few years.

The Kentucky State Board of Health is to be congratulated on the good work they have been doing during the past few years and are to be encouraged by the optometrists of the state to continue this good work. Every optometrist of the state whose ideals and ambitions are above those of the "spec-peddler" should back the board in getting convictions for misleading advertising of the price variety.

C. C. K.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

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Reports of Society Proceedings in Delaware should be sent to Dr. M. Burton Meyer, 101 West Eighth St., Wilmington; in Iowa to Dr. D. A. Kinney, Charles City; in Maryland to Dr. J. F. Andreae, Baltimore; in Minnesota to Dr. J. A. Large, Winona; in Nebraska to Dr. C. A. Perrigo, Freemont; in North Dakota to Dr. A. S. Anderson, Williston; in Oklahoma to Dr. E. B. Alexander, Duncan, and in Vermont to Dr. L. P. Folsom, So. Royalton.

VERMONT ASSOCIATION CONVENTION

The last annual convention of the Vermont Optometric Association was held at Barre the 17th and 18th of May.

Dr. A. S. Haskin reported of the legislative accomplishments of the year. He explained the workings of the new optometry law and pointed out that it granted additional authority to the State Board of Examiners, also that the educational requirements have been raised.

Dr. Fay McFadden lectured on "Vision and the Motor Car." Mr. Pierce of the Vermont State Automobile Department was present and expressed his admiration of the interest displayed by the optometrists in the safety movement. A committee of three has been appointed to assist the State Motor Vehicle Department in making the highways safe for the public.

The following officers were elected for the coming year:

President, A. B. Jordan, Brattleboro; first vice-president, Austin B. Saul, Woodstock; second vice-president, Fay McFadden, Rutland; third vice-president, Myron B. Turner, Boston; secretary-treasurer, Laurence P. Folsom, South Royalton; representative to the New England Council, Cola J. Cleveland, Rutland.

IOWA STATE CONVENTION

The annual convention of the Iowa State Association was held on May 31 and June 1 at the Savoy Hotel, Des Moines.

The convention was called to order by President Paul Johnson, who read a report of the year's activities of the Association.

Drs. Wm. Needles, Roy S. Dean, E. H. Kiekenapp, and A. M. Skeffington were the speakers at the convention.

The following officers were elected: President, Dr. R. F. Nuckolls of Grinnell; secretary, Geo. L. Goodale of Lenox; first vice-president, D. A. Kinney of Charles City; second vice-president, F. E. Robinson of Ames; third vice-president, C. L. Lemmon of Washington; fourth vice-president, E. L. Seidel of Marengo.

PHILADELPHIA ACADEMY OF OPTOMETRY

The Philadelphia Academy of Optometry meeting was held at the Benjamin Franklin Hotel. Dr. Julius Neumilled lectured on the "Development of the Fusion Areas." Dr. W. H. Glazer read a paper, "Theories of the Possible Causes of Cataract and Glaucoma."

The following officers were elected: Dr. Chester H. Johnson, president; Dr. W. H. Glazer, vice-president; Dr. M. Burton Meyer, secretary. Drs. Curtis Whitticar, John C. Neill and S. Aspel were elected as members of the executive committee. Drs. Roy Selig, John Crozier and John Hanna were appointed to serve as the membership committee.

MAINE ASSOCIATION

The May meeting of the Maine Association of Optometrists was held at the DeWitt Hotel in Lewiston, Me., on Wednesday, May 18th.

The Association voted to send President Greenleaf to the National Convention at Washington to represent Maine. Delbert Plaisted of Lewiston was elected alternate.

They also voted to draw up resolutions asking that the publication of the American Journal of Physiological Optics be resumed and offered the Association's combined support to the editors.

The speakers of the afternoon were the following: William F. Leavitt of Augusta, who gave a very interesting talk on Optometrical Publicity; Donald Wight of Auburn read a most original paper on Dynamic Skiametry; Delbert Plaisted of Lewiston, a fine discourse on Astigmatism and Dynamic Skiametry; Geo. McL. Presson of Farmington, a paper on blood pressure and its effects on vision, followed by a description of several cases and a demonstration of the technic in making the test. The snappiest debate of the year was held on the subject "The Value of Peckham's Method of Muscle Innervation." The "pros" were Arthur Corriveau of Biddeford and Joseph Brown of Sanford. The "cons" were Harry J. Covelle of Bangor and Paul Carey of Biddeford. The debate was called a draw by popular vote of the members.

A COURSE ON SUSPENOPSIA

By Doctor Fay McFadden

In response to the constantly increasing number of inquiries I am receiving with respect to the methods of making tests for Suspenopsia, or suspension of vision; How to measure and record the lapses; what procedures to undertake in alleviating the trouble, as well as a discussion of the many contributing causes, I have decided to undertake a correspondence course for those who are sufficiently interested. In doing this I wish to state that I cannot undertake the work unless there are enough practitioners enrolled to make it worth while.

Moreover, those who take up the work should be men who are progressive and can give the subject of Suspenopsia the attention it deserves. If you are interested please sign the coupon below and forward at once. Do not expect an immediate reply, for it will take a few weeks to get a sufficient number together. For particulars write to

DR. F. McFADDEN, 34 CENTRE ST., RUTLAND, VT.

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